PARTS & SERVICE NEWS

REF NO.	AA03173
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SUBJECT: STRENGTHEN TYPE ACCUMULATOR

PURPOSE: To introduce an improved brake accumulator with enhanced durability

APPLICATION: WA300-3 Wheel Loader, S/N 50001 thru 50534
WA320-3L Wheel Loader, S/N A30001 thru A30470
WA350-3 Wheel Loader, S/N A50001 thru A50525, 60001 thru 60176
WA380-3L Wheel Loader, S/N A50001 thru A50464

FAILURE CODE: 2G40AM

DESCRIPTION:

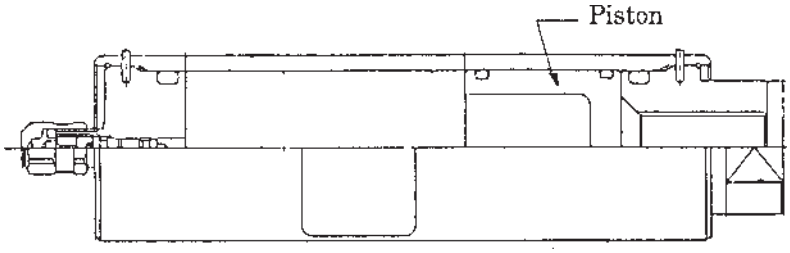
With the above models of wheel loaders, brake operation-ability may deteriorate when the charged gas pressure drops. Will introduce an improved accumulator which can retard deterioration of the charged gas pressure thus enhancing the durability.

It is suggested that the gas pressure be periodically checked and refilled when found in short. Follow the procedures outlined in this **Parts & Service News** until a revised version of the relevant Instruction Manual will be issued.

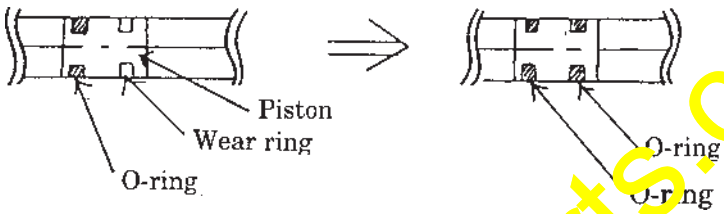
List of Parts

Part No.	Part Name	Qty	Remarks
419-43-27102	Accumulator	2	WA300-3 and WA350-3
07002-01423	O-ring	4	Renew when replacing the accumulator

Contents of the modification with the improved accumulator



(1) The number of O-rings used for the piston has been changed from 1 to 2.



(2) The O-ring material has been changed to a material with less gas permeability (one of the piston rings)

	Gas end cover section	Piston section	Hydraulic port section
Current material	NBR (A305)	NBR (A217)	NBR (A305)
Improved material	IIR (B466)	NBR (A305)	NBR (A305)

Regarding gas charge into the accumulator

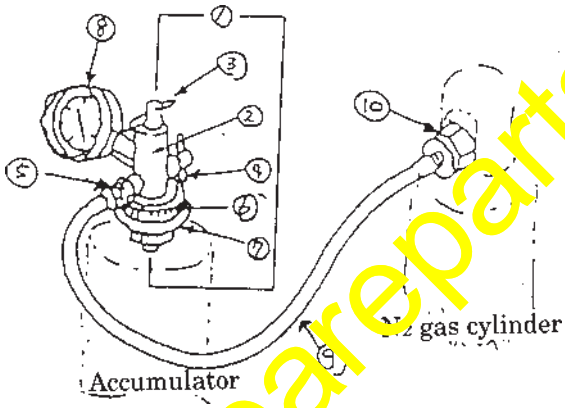
Precaution when charging gas into the improved accumulator:

1) Pay great attention when handling the accumulator.

2) Only the qualified person carrying the high pressure gas handling license can perform N_2 gas charge and no other person should do the work.

1-1 Introduction of the setting tools (Charging valve 792-610-1700)

Connection diagram



Part codes	Part names	
1	Charging valve ass'y	792-610-1700
2	Charging valve body	
3	Handle (for the adjust screw)	
4	Handle (for the bleed plug)	
5	Gas valve	
6	Union nut	
7	Joint	
8	Pressure gauge	
9	Hose ass'y	
10	Reducing joint	Type "B" N_2 gas cylinder conforming to JIS (792-610-1260)

1-2 N_2 gas charging procedures

- Use the charging valve ass'y (792-610-1700) for the gas charge.
- Remove the brake accumulator following the procedures outlined on page 6.

1. Make the following preparations before installing the charging valve ass'y to the accumulator:
   - Turn the handle Ⓐ counter-clockwise as far as it comes up.
   - Turn the handle Ⓑ counter-clockwise as far as it comes up.

2. Remove the cap Ⓓ for the valve Ⓒ of the accumulator.

3. Install the charging valve ass'y to the accumulator.

4. Connect the nitrogen gas cylinder and the charging valve ass'y by the hose ass'y Ⓔ.
   - Use a reducing joint (792-610-1260) Ⓕ since the mouthpiece size of the nitrogen gas cylinder side end of the hose assembly Ⓔ is of the Type A conforming to the JIS standard for the N_2 gas cylinder connection.

☆ The relation between the charging gas pressure and the temperature is as follows:

Charging gas pressure: Px

$$Px = P_0 \times \frac{273 + t}{273 + T_0} \ kg/cm^2$$

Where:

P0: Prescribed gas pressure (3 ± 0.5 kg/cm²)

T0: Prescribed temperature = 50°C

t: Gas temperature when being charged ≒ Outside air temperature

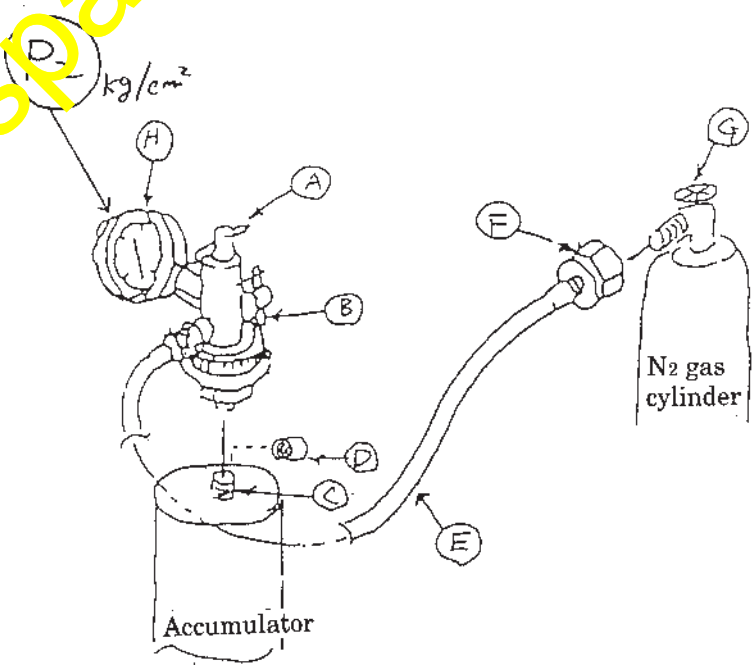
(e.g.)

When the gas temperature when being charged "t" = 20°C:

$$Px = 3 \times \frac{273 + 20}{273 + 50} = 2.7$$

Consequently, the charging gas pressure under the above condition becomes 2.7kg/cm².

Connection diagram



5. After completing the connection work, open the valve Ⓖ of the nitrogen gas cylinder slightly, paying attention not to let the gas flow out suddenly.
When the N_2 gas flows out at a rate of 2 to 3kg/cm^2, the N_2 gas starts leaking through the handle section and, should this occur, turn the handle clockwise to stop the gas leak.

6. Then, gently turn the handle Ⓐ clockwise to push down the piston inside the valve Ⓒ of the accumulator.

7. After this, the valve Ⓖ of the N_2 gas cylinder is to be further opened gradually to charge gas into the accumulator but while doing so, stop turning of the N_2 gas cylinder valve Ⓖ from time to time to read the gas pressure when the pointer of the pressure gauge Ⓗ stabilizes itself.

8. After confirming that the N_2 gas has been charged into the accumulator to the prescribed pressure level according to the above procedure 7, close the N_2 gas cylinder valve Ⓖ securely.
When the charged gas pressure has been found high, close the N_2 gas cylinder valve Ⓖ before turning the handle Ⓑ of the charging valve ass'y counter-clockwise to release the gas slowly to adjust to the prescribed level.

9. Next, turn the handle Ⓐ of the charging valve ass'y counter-clockwise to restore the piston of the valve Ⓒ of the accumulator to its original position, before turning the handle Ⓑ counter-clockwise to release the N2 gas remaining inside the charging valve ass'y and the hose ass'y.

10. Detach the charging valve ass'y from the accumulator.

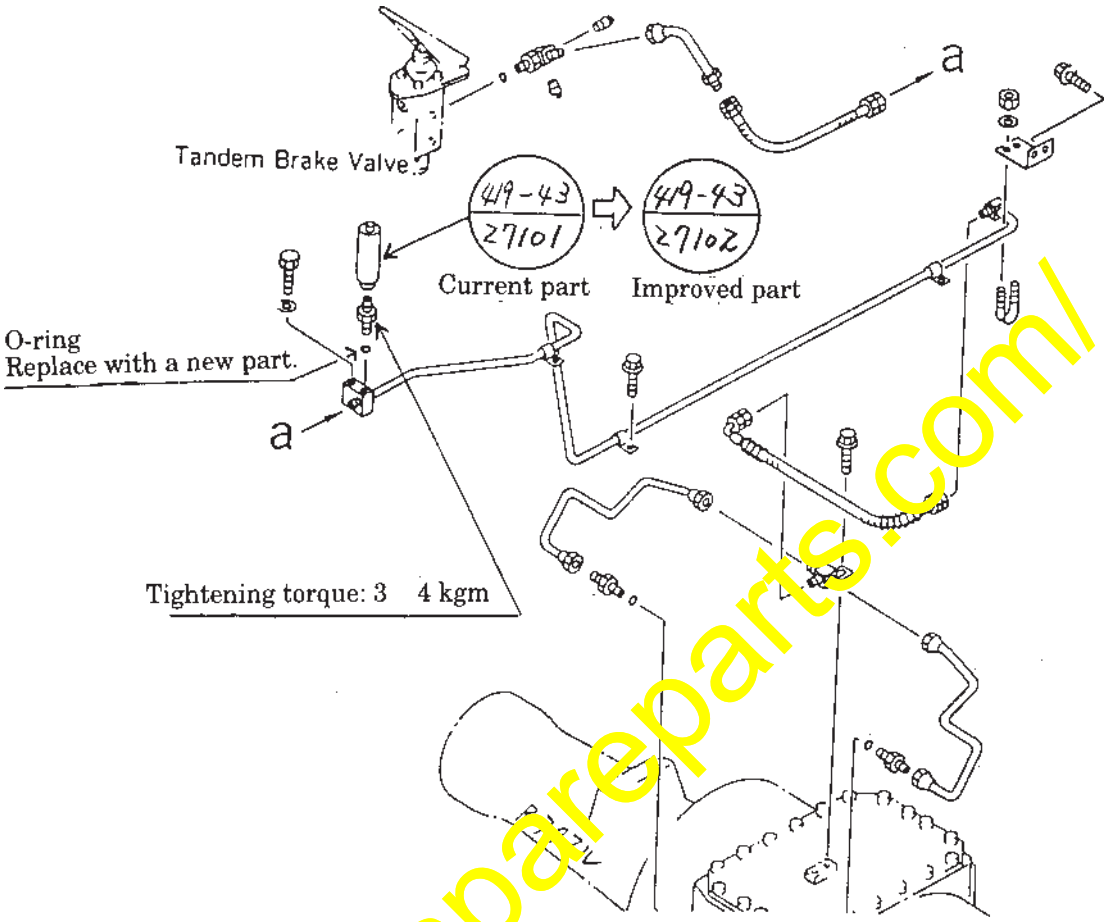
11. Pour water or soapy water over the mouth of the valve Ⓒ of the accumulator to see if the charged gas is not leaking. When no leakage is found occurring, install the valve cap Ⓓ securely to conclude the charging work.

12. Brake accumulator charging gas pressure: (Prescribed pressure = 3 ± 0.5 kg/cm^2 at 50°C)

    Meanwhile, regarding the relation between the charging gas temperature and the gas pressure, refer to page 4.

☆ After the brake accumulator has been replaced with the improved one, refill the N_2 gas "**every 3,000 hours**" or "**every vehicle inspection**".

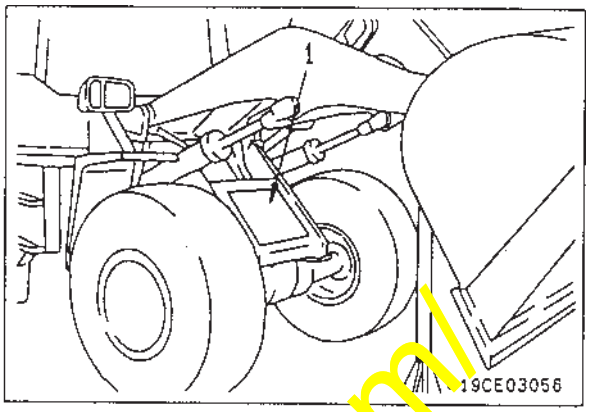
2. Removing and re-installing the brake accumulator



2-1 Remove the current brake accumulator and install the improved accumulator charged with N_2 gas.
(Similarly replace the front brake accumulator.)

3. Air bleeding from the brake circuits

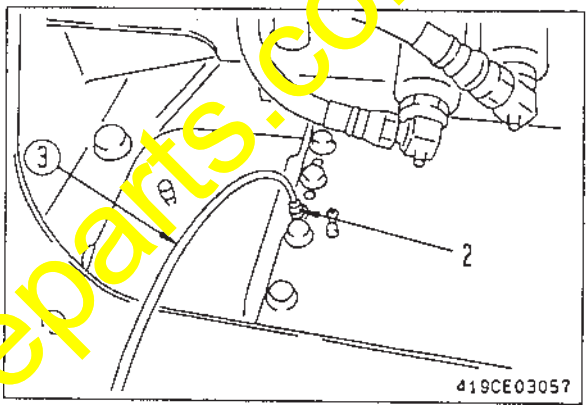
⚠ Pull up the parking brake of the vehicle and securely apply wedges under the tyres.
⚠ Securely insert a strut underneath the boom to prevent it from dropping.



• Remove the front cover (1) of the front frame.

1. Air bleeding from the front accel brake circuit

1) Stop the engine after accumulating the pressure in the accumulator before connecting a vinyl hose ③ to the bleeder screw (2) of the front accel and leading the other end of the hose into a container.



2) Step the brake pedal in and loosen the bleeder screw to bleed air. When releasing the brake pedal, close the bleeder screw in advance before releasing it slowly.

3) Repeat the above operations and, when foam disappear from the liquid running through the bore of the vinyl hose, push in the brake pedal as far as it goes and close the bleeder screw while oil is oozing out through it.

4) Repeat the same procedures as the above for the other side.
★ When the accumulated pressure of the accumulator drops, start the engine to accumulate pressure.

2. Air bleeding from the rear accel brake circuit
Execute air bleeding from the rear accel brake circuit in the same manner as withe the above procedures for air bleeding from the front accel brake circuit.

★ After completing air bleeding, start the engine at the Low-Idling speed and check the oil level. When the oil level is found short, refill oil accordingly.